

SLOVENSKI STANDARD

SIST EN 2714-013:2017

01-september-2017

Nadomešča:

SIST EN 2714-013:2006

Aeronavtika - Eno- ali večžilni električni kabli za splošno uporabo - Delovne temperature med -55 °C in 260 °C - 013. del: Družina DR, oklopljeni (spirala) in oplaščeni, z možnostjo UV-laserskega tiskanja - Standard za proizvod

Aerospace series - Cables, electrical, single and multicore for general purpose - Operating temperatures between -55 °C and 260 °C - Part 013: DR family, screened (spiral) and jacketed, UV laser printable - Product standard

Luft- und Raumfahrt - Leitungen, elektrisch, ein- und mehradrig, für allgemeine Verwendung - Betriebstemperaturen zwischen -55 °C und 260 °C - Teil 013: DR-Familie, geschirmt (Umseilung) und ummantelt UV-Laser bedruckbar - Produktnorm

Série aérospatiale - Câbles, électriques, mono et multiconducteurs d'usage général - Températures de fonctionnement comprises entre -55 °C et 260 °C - Partie 013: Famille DR, blindés (guipés) et gainés, marquable au laser UV - Norme de produit

Ta slovenski standard je istoveten z: EN 2714-013:2017

ICS:

29.060.20	Kabli	Cables
49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems

SIST EN 2714-013:2017

en,fr,de

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EUROPEAN STANDARD

EN 2714-013

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2017

ICS 49.060

Supersedes EN 2714-013:2005

English Version

**Aerospace series - Cables, electrical, single and multicore
for general purpose - Operating temperatures between
-55 °C and 260 °C - Part 013: DR family, screened (spiral)
and jacketed, UV laser printable - Product standard**

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Betriebstemperaturen zwischen - 55 °C und 260 °C -
Teil 013: DR-Familie, geschirmt (Umseilung) und
ummantelt UV Laser bedruckbar - Produktnorm

This European Standard was approved by CEN on 20 February 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 2714-013:2017) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2017, and conflicting national standards shall be withdrawn at the latest by December 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 2714-013:2005.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 2714-013:2017 (E)**1 Scope**

This European Standard specifies the characteristics of UV laser printable DR family, single and multicore screened (spiral) and jacketed electrical lightweight cables for use in the on-board electrical systems of aircraft, at operating temperatures between – 55 °C and 260 °C. Nevertheless, if needed, – 65 °C is also acceptable as shown by cold test.

It shall also be possible to mark these cables by qualified compatible marking.

These markings shall satisfy the requirements of EN 3838.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2235, *Aerospace series — Single and multicore electrical cables, screened and jacketed — Technical specification*

EN 2267-009, *Aerospace series — Cables, electrical, for general purpose — Operating temperatures between – 55 °C and 260 °C — Part 009: DRA family, single and multicore assembly — Product standard*

EN 2267-010, *Aerospace series — Cables, electrical, for general purpose — Operating temperatures between – 55 °C and 260 °C — Part 010: DR family, single UV laser printable — Product standard*

EN 2714-002, *Aerospace series — Cables, electrical, single and multicore for general purpose — Operating temperatures between – 55 °C and 260 °C — Part 002: Screened and jacketed — General*

EN 3475 (all parts), *Aerospace series — Cables, electrical, aircraft use — Test methods*

EN 3838, *Aerospace series — Requirements and tests on user-applied markings on aircraft electrical cables*

EN 4434, *Aerospace series — Copper or copper alloy lightweight conductors for electrical cables — Product standard (Normal and tight tolerances)*

EN 9133, *Aerospace series — Quality Management Systems — Qualification Procedure for Aerospace Standard Products*

TR 6058, *Aerospace series — Cable code identification list* ¹⁾

3 Terms, definitions, symbols and abbreviations

For the purposes of this document, the terms, definitions, symbols and abbreviations given in EN 3475-100 apply.

1) Published as ASD-STAN Technical Report at the date of publication of this standard by AeroSpace and Defence industries Association of Europe - Standardization (www.asd-stan.org)

4 Materials and construction

4.1 Materials

These cables shall consist of the following:

- cores according to EN 2267-009 (or EN 2267-010 for single core construction)
- number of cores 1 to 4.

2 to 4-core cables shall be twisted together according to EN 2235.

Filler cores shall not be permitted.

Screen:

- nickel-plated copper stranded spiral screen;
- for dimensions of strands, see Table 1;
- material according to EN 4434, tests according to EN 3475-100;
- construction according to EN 2235.

Outer jacket:

- shall be defined to satisfy all required characteristics of Clause 5.

4.2 Construction

See EN 4434 and Table 1.

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Table 1

Number of cores	Code for nominal section	Nominal section mm ²	AWG ^a	Linear resistance	Screen strands nominal diameter mm	External diameter	Mass
				at 20 °C Ω/km max.		mm max.	kg/km max.
1	001	0,15	26	160,0	0,08	1,31	4,68
	002	0,25	24	114,0	0,08	1,45	5,76
	004	0,4	22	60,0	0,08	1,60	7,51
	006	0,6	20	33,2	0,08	1,84	10,77
	010	1	18	21,1	0,08	2,08	14,97
	012	1,2	16	14,5	0,10	2,43	20,97
	020	2	14	10,9	0,10	2,74	27,03
	030	3	12	6,8	0,10	3,20	39,70
	051	5	10	4,1	0,12	3,89	61,94

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Number of cores	Code for nominal section	Nominal section mm ²	AWG ^a	Linear resistance at 20 °C	Screen strands nominal diameter	External diameter	Mass
				Ω/km max.	mm	mm max.	kg/km max.
2	001	0,15	26	165,00	0,08	2,13	8,17
	002	0,25	24	117,00	0,08	2,40	10,23
	004	0,4	22	61,70	0,08	2,70	13,64
	006	0,6	20	34,10	0,10	3,22	21,05
	010	1	18	21,70	0,10	3,71	29,52
	012	1,2	16	14,90	0,12	4,38	41,20
	020	2	14	11,20	0,15	5,04	55,83
	030	3	12	6,99	0,20	6,09	86,79
	051	5	10	4,22	0,20	7,39	130,51
3	001	0,15	26	165,00	0,08	2,26	10,94
	002	0,25	24	117,00	0,10	2,59	14,72
	004	0,4	22	61,70	0,10	2,91	19,76
	006	0,6	20	34,10	0,12	3,48	30,44
	010	1	18	21,70	0,12	4,00	42,96
	012	1,2	16	14,90	0,15	4,73	60,67
	020	2	14	11,20	0,15	5,39	78,83
	030	3	12	6,99	0,20	6,50	122,72
	051	5	10	4,22	0,20	7,90	186,69
4	001	0,15	26	165,0	0,10	2,51	14,57
	002	0,25	24	117,0	0,10	2,84	18,47
	004	0,4	22	61,7	0,10	3,19	25,04
	006	0,6	20	34,1	0,12	3,82	38,81
	010	1	18	21,7	0,12	4,41	55,22
	012	1,2	16	14,9	0,15	5,23	78,02
	020	2	14	11,2	0,20	6,06	107,36

^a AWG = Closest American Wire Gage.

4.3 Colour coding of cores and jacket

See EN 2714-002.

5 Required characteristics

According to EN 2235, EN 3475-100 and EN 3838.

See Table 2.

Table 2

EN 3475-	Designation of the test	Details
201	Visual examination	Applicable Including UV laser markings EN 3838, subclause 6.1.
202	Mass	Applicable, see Table 1.
203	Dimensions	Applicable, see Table 1.
301	Ohmic resistance per unit length	Applicable, see Table 1.
302	Voltage proof test	Applicable
303	Insulation resistance	Applicable
304	Surface resistance	Applicable
305	Overload resistance	Not applicable
306	Continuity of conductors	Applicable
307	Corona extinction voltage	Not applicable
401	Accelerated ageing	Applicable Temperature (310 ± 5) °C Including UV laser markings EN 3838, subclause 6.4.
402	Shrinkage and delamination	Applicable Temperature (290 ± 5) °C Maximum shrinkage at each end of cable: jacket: 2 mm on AWG 26 to 18; 3 mm on AWG 16 to 10. core: according to EN 2267-009.
403	Delamination and blocking	Applicable Temperature (310 ± 5) °C
404	Thermal shock	Applicable but (– 65 ± 2) °C instead of (– 55 ± 2) °C Temperature (260 ± 5) °C Maximum shrinkage at each end of cable: jacket: 2 mm on AWG 26 to 18; 3 mm on AWG 16 to 10. core: according to EN 2267-009.
405	Bending at ambient temperature	Applicable
406	Cold bend test	Applicable but (– 65 ± 2) °C
407	Flammability	Applicable Extinguishing time: 3 s max.
408	Fire resistance	Not applicable